



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/365,356	07/30/1999	TONGBI JIANG	660073.774	1684

27076 7590 02/11/2003

DORSEY & WHITNEY LLP
INTELLECTUAL PROPERTY DEPARTMENT
SUITE 3400
1420 FIFTH AVENUE
SEATTLE, WA 98101

EXAMINER

BEREZNY, NEMA O

ART UNIT	PAPER NUMBER
----------	--------------

2813

DATE MAILED: 02/11/2003

29

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/365,356

Applicant(s)

JIANG, TONGBI

Examiner

Nema O Berezny

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 8-15, 18, 38, 40-45 and 50-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8-15, 18, 38, 40-45 and 50-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 28.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12-11-02 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 8-15, 18, 38, and 40-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchell (6,169,328) in view of Chan et al. (5,461,255). Mitchell discloses a semiconductor device package, comprising: a semiconductor die (Fig.1 el.120) having a bond pad (el.130) on a first surface; and a flexible organic interposer having a die attach surface and an external surface opposite the die attach surface (el.100; col.4 lines 58-67), with an electrical interconnect (el.150) coupled to the bond pad of the die and to an external terminal (el.140) or a solder ball (Fig.1 no #) on the

interposer external surface (Fig.1). Mitchell also discloses a plurality of strips (Fig.4B el.110) of single layer adhesive, compliant, elastomeric film (col.5 lines 1-6; col.6 lines 26-33) disposed in between the die and interposer to adhere the die to the interposer die attach surface. Mitchell also discloses an encapsulating material, substantially filling the regions remaining in between the die and the interposer (Fig.2 el.170). Mitchell discloses using a plurality of strips of adhesive film, comprising: a first and second adhesive layer adhered to a carrier layer, and laminating said strips to either the interposer or to the chip (col.9 lines 54-58).

However, Mitchell does not disclose a plurality of strips of compliant adhesive film whose lengths extend substantially the entire length of the die, and wherein the sum of the widths of said strips are substantially less than the width of the die. Chan discloses a plurality of strips of double sided adhesive tape, comprising a carrier layer and two adhesive layers on opposite sides of said carrier layer, that extend substantially the length of the die and wherein the sum of the widths of said strips are substantially less than the width of the die (Fig.3; col.3 line 62 – col.4 line 4; col.4 lines 20-29). Therefore, it would have been obvious to a person skilled in the art at the time of the invention to use the plurality of adhesive strips of Chan with the semiconductor package of Mitchell in order to provide additional adhesion of the die to the interposer, but still allow independent expansion and contraction of the strips.

Claims 50-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchell in view of Chan as applied to claims 1-3, 8-15, 18, 38, and 40-45 above, and

further in view of Takahashi et al. (5,461,087). Mitchell in view of Chan do not disclose multiple layers of a carrier layer. However, Takahashi discloses a double sided adhesive carrier layer, wherein said carrier layer comprises multiple layers (Figs.1a-1f). Therefore, it would have been obvious to a person skilled in the art at the time of the invention to use the multiple layered carrier layer of Takahashi with the method of fabricating a semiconductor device of Mitchell in view of Chan in order to increase the cohesion and adhesion at elevated temperatures, as well as provide superior thermal resistance (Takahashi – col.3 lines 58-63).

Response to Arguments

Applicant's arguments with respect to claims 1-3, 8-15, 18, 38, 40-45, and 50-53 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nema O Berezny whose telephone number is (703) 305-3445. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on (703) 308-4940. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.


Application/Control Number: 09/365,356

Page 5

Art Unit: 2813

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

NB
February 1, 2003


CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800